

REMARKS

In response to the Office Action mailed March 21, 2008, claims 1 and 10 have been amended. Claims 3, 15-16 were previously canceled. Thus, claims 1, 2, 4-14, and 17-20 are presented for examination.

35 U.S.C. § 103

Claims 1, 4-9, and 19-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over US 5,839,497 (Fujino I) and further in view of EP 0 875 318 (Taniguchi). But Fujino I and Taniguchi, alone or in any proper combination, fail to disclose or make obvious cooling a lower end of a cylinder or sleeve to solidify part of a molten charge at the lower end of the cylinder or sleeve, as recited in claim 1.

Referring to Fujino I's FIG. 1 reproduced below, Fujino I discloses a vertical die casting method that includes "a casting cylinder 9 as well as [a] casting sleeve 7, [a] plunger tip 11, and the like [that] can be tilted by the operation of a tilting unit . . . to such positions that a ladle 17 can supply the melt to them . . ." (Fujino, col. 8, lines 21-23, see also id., FIG. 1). "An inner plunger 19 is arranged to extend through the axial portions of the [outer] plunger 11 and plunger 12." (Id., col. 8, lines 28-29). Fujino I discloses a cooling water passage 22 and a pipe 23 formed in his inner plunger 19 to internally cool his inner plunger 19. (See, e.g., id., col. 8, lines 43-45). Fujino I discloses that melt can solidify at the gap between the inner plunger 19 and outer plunger 11 to serve as a piston ring and prevent seizing of the inner plunger 19. (See, e.g., id., col. 8, lines 51-57). During use, plunger tip 11, plunger 12, and inner plunger 19 are moved upward simultaneously by the operation of a piston and piston rod 14. (See, e.g., id., col. 9, lines 41-47). Fujino's water-cooled inner plunger 19 is then advanced toward a gate 27, where the water-cooling in the inner plunger cools the melt at an inlet port portion of gate 27. (See, e.g., id., col. 10, lines 28-36). This allows the biscuit to cool and solidify quickly. (See, e.g., id., col. 10, lines 37).

Fujino does not disclose or make obvious cooling a lower end of a cylinder or sleeve to solidify part of the molten charge at the lower end of the cylinder or sleeve. This is not a trivial distinction. For example, as noted in Applicant's specification, such cooling of the lower end of the cylinder or sleeve can allow part of the molten charge to solidify, providing a secondary seal

which is formed of solidified light metal from the molten charge. (See, e.g., US 2007/0102132, ¶[0045]).

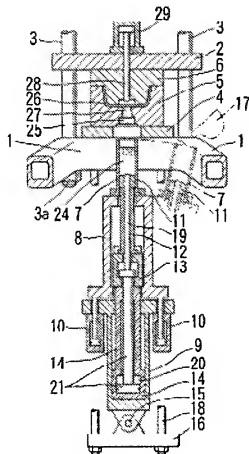
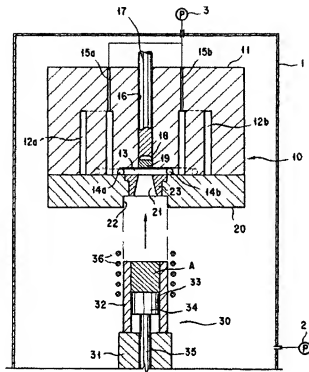


FIG. 1

Referring to Taniguchi's FIG. 1 reproduced below, Taniguchi discloses an apparatus including a melting vessel 30 in the upper part of a main body 31. An upper part of Taniguchi's melting vessel 30 includes a cylindrical raw material accommodating part 32. (See, e.g., *id.*, p. 6, lines 5-7). Taniguchi discloses an induction coil 36 as a heat source encircling the raw material accommodating part 32 of the melting vessel 30. (See, e.g., *id.*, p. 6, lines 35-36). Taniguchi's induction coil is excited to heat the alloying raw material A rapidly. (See, e.g., *id.*, p. 6, lines 51-52). Taniguchi does not disclose or make obvious cooling a portion of a cylinder or sleeve, much less cooling a lower portion of a cylinder or sleeve to solidify part of a molten charge at

the lower end of the cylinder or sleeve. For at least this reason, Taniguchi has not been shown to cure the deficiencies of Fujino I as discussed above.

FIG. 1



Claims 2, 10-14, and 17-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujino I in view of Taniguchi and further in view of US 4,842,038 (Fujino II). Claim 2, however, depends from claim 1 and is patentable for at least the same reasons. With regard to claim 10, Fujino I and Taniguchi fail to disclose or make obvious a cooling fluid supply configured to apply a cooling fluid to the lower end of the cylinder or sleeve for at least the reasons discussed above with respect to claim 1. Moreover, Fujino II has not been shown to cure the deficiencies of Fujino I and Taniguchi. For example, Fujino II has not been shown to disclose or make obvious a cooling fluid supply configured to apply a cooling fluid to the lower end of the cylinder or sleeve.

In view of the foregoing discussion, Applicants request reconsideration and withdrawal of the rejections of claims 1, 2, 4-14, and 17-20 as being unpatentable.

Provisional Rejection for Double Patenting

Claims 1, 2, 4-14, and 17-20 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 10/596,017. The Applicant requests that this rejection be held in abeyance until the claims are otherwise in condition for allowance.

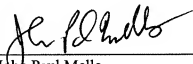
Conclusion

Any circumstance in which the Applicant has (a) addressed certain comments of the Examiner does not mean that the Applicant concedes other comments of the Examiner, (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims, or (c) amended or canceled a claim does not mean that the Applicant concedes any of the Examiner's positions with respect to that claim or other claims.

The fee for a three-month extension of time is being paid concurrently herewith on the Electronic Filing System (EFS) by way of deposit account authorization. Please apply any other charges or credits to deposit account 06-1050, referencing Attorney Docket 20997-002US1.

Respectfully submitted,

Date: September 19, 2008



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